Laura K. Perry
Coordinator - Air Quality

ConocoPhillips Alaska, Inc.
Health, Safety & Environmental
P.O. Box 100360
Anchorage, AK 99510-0360
Phone: 907-265-6937
Laura.Perry@conocophillips.com

ConocoPhillips
Alaska

June 15, 2018

Certified Mail
Return Receipt Requested
7017 0660 0000 0430 1962

Kelly McFadden
US Environmental Protection Agency, Region 10
1200 6th Ave, Suite 900
Mail Code: OAW-150
Seattle, WA 98101
P: (206) 553-1679
E: mcfadden.kelly@epa.gov

Subject: CPAI Alternative Monitoring Request Supplement Response

Dear Ms. McFadden:

This letter responds to the EPA's letter dated February 21, 2018, requesting additional information to support the ConocoPhillips Alaska, Inc. (CPAI) Alternative Monitoring Request (AMR) for the Well Site Leak Detection and Repair (LDAR) requirements established within the New Source Performance Standards for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015 (Subpart OOOOa, NSPS OOOOa, or Rule).

The additional information requested is provided below; however, the AMR has less immediacy considering the EPA's March 12, 2018 amendments, which modify the initial and routine monitoring survey frequencies for operations on the Alaska North Slope under NSPS Subpart OOOOa. So long as those amendments are in effect, CPAI will comply with those requirements. If those amendments become not effective and the original promulgated rule becomes the measure of compliance due to legal or other regulatory action, then CPAI will use the procedures described in our original August 31, 2017 AMR letter (as supplemented by this letter). CPAI does not intend to utilize the AMR procedures during the time the NSPS OOOOa amendments of March 12, 2018 are in effect.

Background

On August 31, 2017, CPAI submitted an AMR seeking approval to use audible, visual, and olfactory (AVO) inspections to satisfy the leak detection requirements established under 40 CFR §60.5397a for equipment that cannot be surveyed using the Rule's prescribed technologies (optical gas imaging [OGI] or EPA Method 21 [M21] analyzers) due to the ambient conditions on the Alaska North Slope. In a response letter dated February 21, 2018, the EPA requested the following additional information:

1. Information demonstrating AVO will be an effective method of leak detection; and
2. Explanation of procedures and training CPAI will use to ensure effectiveness of AVO inspections

113805

CPAI Responses

1. *AVO Effectiveness*

CPAI is only requesting approval to conduct AVO inspections on fugitive components located in "non-heated or open environments" (NHE) during the period when ambient temperatures are typically too cold to operate OGI or M21 analyzers.

North Slope facilities containing production fluids operate at elevated temperatures and pressures. Any liquids or gases exposed to cold temperatures during a "leak" readily exchange heat with the ambient environment. Consequently, there is a noticeable visual contrast that can be visually identified when a material is escaping to the atmosphere. Additionally, the exposure of process fluids to atmosphere during these cold weather periods will readily create other visual indications such as misting, clouding, hydrate formation, and equipment staining. This makes fugitive components in NHE operating areas an ideal candidate for visual identification of leaks.

North Slope production fluids contain condensate and other "light end" components that CPAI monitors closely for safety and compliance programs. These components have a distinct petroleum hydrocarbon smell. Personnel working in and among these facilities have heightened awareness of the potential for leaks inside enclosed operating areas, which would generate hazardous conditions. So, the presence of these compounds makes "leaks" readily discoverable by olfactory detection.

Finally, as mentioned above, production lines operate at elevated pressures. If a leak develops in a high-pressure line, audible hissing can be perceived by the AVO inspectors.

2. *Procedures and Training*

As part of its existing NSPS OOOOa LDAR program, CPAI has already established a training program for the various organizational groups (e.g., OGI inspectors, operations, maintenance) involved in the program.

As part of the AMR, CPAI will create and implement a new NSPS OOOOa-specific procedure outlining the expectations for conducting AVO inspections to promote consistency and the quality of inspections. Examples of elements that will be included in the NSPS OOOOa AVO procedure include:

A. Overview of the NSPS OOOOa LDAR requirements
B. Areas of the well site that are permitted to use AVO inspections
C. What constitutes fugitive emissions during an AVO inspection
D. AVO inspection instructions
E. AVO inspection frequencies
F. Instructions for initiating repairs if fugitive emissions are identified during AVO inspections
G. Recordkeeping requirements

CPAI will create a new training module that will be required for all personnel conducting AVO inspections under NSPS OOOOa. Personnel performing AVO inspections will be required to undergo initial and refresher training to ensure only qualified personnel are used.

CPAI appreciates EPA's consideration of our AMR. If you have any additional questions, please feel free to contact me at (907) 265-6937 or airqualitycoordinator@conocophiliips.com.

Sincerely,

on behalf of

Laura K. Perry
Coordinator – Air Quality

cc: (electronic)
Dave Bray (EPA)
John Pavitt (EPA)
Marcia Combes (EPA)

McFadden, Kelly

From: Bray, Dave
Sent: Wednesday, February 21, 2018 9:57 AM
To: McFadden, Kelly
Subject: RE: CPAI_NSPS_OOOOa_Well letter

I agree with Brett's comment.

This is my electronic concurrence on the letter.

Dave

From: McFadden, Kelly
Sent: Wednesday, February 21, 2018 9:28 AM
To: Bray, Dave <Bray.Dave@epa.gov>
Subject: CPAI_NSPS_OOOOa_Well letter

Dave,
Can you get your final review and concurrence on the attached letter today? It's currently with Brett for his concurrence and includes all of the changes that you and Brett provided Madonna.

Thank you!

Kelly McFadden, Acting Manager
Stationary Source Unit
U.S. EPA Region 10
1200 6th Ave, Suite 900, OAW-150
Seattle, WA 98101
206-553-1679

OAW Region 10 Routing/Concurrence Form

Author:	Madonna Narvaez	Date:	2/20/2018

Addressee:	Ms. Laura Perry
Subject:	ConocoPhillips Alaska, Inc. (CPAI) Alternative Monitoring Request under New Source Performance Standards Subpart OOOOa, Leak Detection and Repair (LDAR) Requirements
File Location/Name (Must include COMPLETE file location & file NAME:	G:\user\share\baker\air quality\5-ssu\1) air toxics files\applicability determinations et al\CPAI NSPS OOOOa\CPAI_NSPS_OOOOa_Well Site LADAR AMR_02202018_final

PROGRAM AND RA ADMIN REVIEW:

Name:						
Initials/Date:						

PROGRAM OFFICE CONCURRENCE:

Name:	M Narvaez	Dave Bray	Brett Dugan/ORC			
Initials/Date:	/mmn/2/20/2018 2/21/2018	2/21/18	2/21/18			

RA OFFICE CONCURRENCE/SIGNATURE (If tribal, include Tribal Advisor; if congressional, include Public Affairs Director):

Name:						
Initials/Date:						

cc(s) (If hard copy mail, include name, title, organization & address. If PDF via email, PDF copy will be sent to author to email to cc's.)

bcc(s) (If hard copy mail, include name, title, organization & address. If PDF via email, PDF copy will be sent to author to email to bcc's.)

John pavitt	1) Air toxics files/applicability determinations et al/CPAI NSPS OOOOa – 02212018	

Mailing Deadline:		**Certified Mail:**	
FAX to:		**FAX #:**	

ADDITIONAL INFO/COMMENTS:					
Program	X NSPS	Chrono.	X	Other	CPAI

File Path: G/Baker/Air Quality/OAQ Administrative/OAQ Forms/Concurrence Form-Nov 2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
AIR AND WASTE

February 21, 2018

Laura K. Perry
Coordinator – Air Quality
ConocoPhillips Alaska, Inc.
P.O. Box 100360
Anchorage, Alaska 99510-03600

Subject: ConocoPhillips Alaska, Inc. (CPAI) Alternative Monitoring Request under New Source Performance Standards Subpart OOOOa, Leak Detection and Repair (LDAR) Requirements

Dear Ms. Perry:

Thank you for your letter of August 31, 2017, where you submitted an alternative monitoring request under the New Source Performance Standard, 40 C.F.R. Part 60 Subpart OOOOa, for Crude Oil and Natural Gas Facilities for which Construction, Modification, and Reconstruction Commenced after September 18, 2015 ("NSPS OOOOa"). We have reviewed your request and determined that we cannot act on the request without additional information.

According to your request, ConocoPhillips Alaska, Inc. operates crude oil production facilities on the Alaska North Slope. The production facilities contain multiple well sites connected to a central processing facility. The well sites contain a combination of surface equipment located in enclosure buildings, such as piping manifolds, wellheads, and freeze protection storage. According to your request, some of these well sites operate at or close to ambient temperature, while others are heated.

ConocoPhillips Alaska, Inc., has requested an alternative monitoring protocol for the leak detection requirements in the fugitive emissions greenhouse gas and volatile organic compound standards applicable to well sites in NSPS OOOOa, found at 40 C.F.R. § 60.5397a. Fugitive emissions are defined, for the purposes of 40 C.F.R. § 60.5397a, as any visible emission from a fugitive emissions component observed using optical gas imaging (OGI) or an instrument reading of 500 ppm or greater using Method 21 of Appendix A-7 of 40 C.F.R. Part 60 ("Method 21"). The regulation at 40 C.F.R. § 60.5397a requires both initial and routine monitoring surveys of fugitive emissions components at well sites. The surveys must be conducted using either OGI or Method 21.

In the August 31, 2017, letter, ConocoPhillips Alaska, Inc. explains that using OGI or Method 21 to detect leaks is not possible for unheated well sites during a "low ambient temperature exclusion period" (defined as between the months of November and April when the ambient temperatures are typically below 0° F). ConocoPhillips proposes to use audible, visual, or olfactory (AVO) inspections when using Method 21 or OGI is not possible at unheated well sites during the low ambient temperature exclusion period.

We cannot act on your request at this time because the request does not include a demonstration that use of AVO on the proposed schedule is an effective method of leak detection for the purposes of complying with the applicable fugitive emissions standards in NSPS OOOOa. ConocoPhillips Alaska, Inc.'s demonstration

must also include an explanation of the procedures and training the company intends to follow to ensure the effectiveness of leak detection using AVO.

EPA will continue to review your request once we have received the required demonstration. If you have any questions, contact Madonna Narvaez of my staff at 206.553.2117, or by email at narvaez.madonna@epa.gov.

Sincerely,

Kelly McFadden, Acting Manager
Stationary Source Unit

Request Type: aMR ConocoPhillips_ NSPS 0000a

U.S. EPA REGION 10 OFFICE OF AIR AND WASTE (OAW) – STATIONARY SOURCE UNIT (SSU)
CLEAN AIR ACT APPLICABILITY DETERMINATION REQUEST PROCESSING FORM
(Standard Operating Procedure on Reverse Side)

Date of Letter: 8/31/2017 **Date Received:** 8/31/2017

Facility Name: Crude Oil Wells Production **Site Location:** North Slope

Local Air Agency: ADEC **Delegated Agency/Office:** R10 OAW

REGULATORY REFERENCE:

✓ NSPS (40 C.F.R. Part 60) Subpart: 0000a (Leak Detection + Repair)

_____ NESHAP (40 C.F.R. Part 61) Subpart: _____

_____ Federal Plan (40 C.F.R. Part 62) Subpart: _____

_____ NESHAP (40 C.F.R. Part 63) Subpart: _____

ACTION:

☐ Date verified which agency/office is delegated to respond to request; **date:**_____

☐ Recorded in 'Air Toxics Outstanding Requests' Excel spreadsheet on Air Toxics Group SharePoint site in the 'MASTER_Pending ADs_041217' tab; **date:** 12/6/2017

☐ Original Incoming Request Scanned to: G:\Baker\AIR QUALITY\5 - SSU\1) AIR TOXICS Files\Applicability Determinations, et al\Incoming Requests AD Scans by Assignee; **date:** 12/6/2017

☐ Original Incoming Request Scanned to AIS by Assignee, **date:**_____

☐ Compliance plan (if applicable), compliance; **date:**_____

☐ Enforcement unit review (if applicable); **date:**_____

☐ Time sensitive, (if applicable) response needed; **date:**_____

ROUTE TO:

☐ EPA response assigned to:_____

☐ ORC counsel's signature; concurrence **date:** _____

☐ SSU Unit Manger's / Delegated Official's signature; concurrence **date:** _____

CHECKLIST:

☐ Final Letter with Abstract & Header input to AIS by Assignee; **date:**_____

☐ PDF of Signed Copy, Word version of EPA's final letter, and PDF of Concurrence Sheet saved to: G:\Baker\AIR QUALITY\5 - SSU\1) AIR TOXICS Files\Applicability Determinations, et al\[CompanyName_[Part#][Subpart Letters]_[Date of Signed Letter] e.g. ABRA_63HHHHHH_03112014

☐ Send copy of signed hard copy, original concurrence sheet, and original incoming request to file

☐ Update the Air Toxics Group Sharepoint Excel spreadsheet to reflect request is now closed and move request from the 'MASTER_Pending ADs_041217' tab to the 'MASTER_Completed ADs' tab

APPLICABILITY DETERMINATION STANDARD OPERATING PROCEDURE (SOP) SUMMARY

1. **Determination Request is Received by SSU (SOP Chapter 1)**
   - 1.1. Assignee verifies if this subpart is delegated to the source's local air agency then assignee verifies if the specific provision within the request is delegated to the source's local air agency.
     - 1.1.1. If provision(s) and subpart(s) is delegated to the source's local air agency, notify the source and direct them to submit it directly to the local air agency.
     - 1.1.2. If provision(s) and subpart(s) is only delegated to EPA, verify if the request can be processed by EPA R10 or EPA's Emission Measurement Center (EMC).
       - 1.1.2.1. Verify R10 CAA delegation of authority here.
       - 1.1.2.2. Verify if request must be processed by EMC here.
   - 1.2. Assignee fills out and attaches the 'Applicability Determination Request Processing Form' AKA "blue sheet" to the determination request.
   - 1.3. Assignee logs & updates the master determination spreadsheet located in the 'Air Toxics Group' SharePoint site Excel spreadsheet: 'Sharepoint – R10 Air Toxics Outstanding Requests_02132017' in the 'MASTER_Pending ADs_041217' tab.

2. **Assignee Responds to the Determination Request (SOP Chapter 2)**
   - 2.1. Scan the original incoming request in to AIS as soon as feasible and to G:\Baker\AIR QUALITY\5 - SSU\1) AIR TOXICS Files\Applicability Determinations, et al\! Incoming Requests AD Scans
     - 2.1.1. When naming the pdf of the original incoming request use the following naming convention: "[Requestor Name Shorthand]_[Type of Request]_Part[i.e., 60, 61, 62, 63] Subpart [Subpart the Request is Made Under]_[Date of Incoming Letter in DDMMYYYY] e.g. NWCAA_Delegation Request_Part 60_12212016 or MEA_Like for Like Request_Part 60 Subpart JJJJ_12302013
   - 2.2. Make one working copy of the determination request.
   - 2.3. Prepare EPA's response to the determination request.
   - 2.4. Save EPA's response to: G:\Baker\AIR QUALITY\5 - SSU\1) AIR TOXICS Files\Applicability Determinations, et al; in a folder using following the naming convention [Requestor Name Shorthand]_[Part][Subpart]_[date of signed letter] e.g. ABRA_63HHHHHH_03112014
   - 2.5. Prepare a concurrence / routing slip found here: G:\Baker\AIR QUALITY\5 - APDU\1) AIR TOXICS Files\Sample Concurrence_042016.docx.doc

3. **Assignee Prepares the Letter for Signature (SOP Chapter 3)**
   - 3.1. Proofread the letter for grammar.
   - 3.2. Assemble a "purple folder" for concurrence and signature.
   - 3.3. Route the final letter to ORC for concurrence.
   - 3.4. If no changes / no further changes are required, give the folder to SSU Manager or other delegated official for signature.
   - 3.5. Assignee makes all requested changes and edit to the final letter to verify and ensure accuracy.

4. **Sara/APA Receives the Folder from SSU Manager with Signature (SOP Chapter 4)**
   - 4.1. Date stamp the letter.
   - 4.2. Make a pdf and save in the same folder as '2.4,' above (G:\Baker\AIR QUALITY\5 - APDU\1) AIR TOXICS Files\Applicability Determinations, et al) as original word version.
   - 4.3. Prepare and send out letter as instructed in routing slip.

5. **Records Management (SOP Chapter 5)**
   - 5.1. Make PDF of concurrence sheet and save to request folder created in '2.1' using naming convention "ConcurrenceSheet_[Requestor Name Shorthand]_[Part][Subpart]_[DateLetterSigned]
   - 5.2. File copy of signed letter, original incoming request, and original concurrence sheet in file room / send to file room contact in OAW.
   - 5.3. Stamp each package and indicate where to file information.

6. **Assignee receives email from Sara / APA (SOP Chapter 6)**
   - 6.1. Prepare abstract & header for AIS.
   - 6.2. Upload PDF of signed letter to AIS and input remaining information, change status to 'final.'
   - 6.3. Update entry in 'Air Toxics Outstanding Requests' Excel spreadsheet on Air Toxics Group to reflect that request is now closed, highlight the row mint green and move the request from the 'MASTER_Pending ADs_041217' tab to the 'MASTER_Completed ADs' tab.

Narvaez, Madonna

Subject: FW: CPAI OOOOa Alternative Monitoring Request
Location: Conference Call: (b) (6)

Start: Fri 9/15/2017 11:00 AM
End: Fri 9/15/2017 12:00 PM

Recurrence: (none)

Meeting Status: Accepted

Organizer: Perry, Laura K

-----Original Appointment-----
From: Perry, Laura K [mailto:Laura.Perry@conocophillips.com]
Sent: Tuesday, September 12, 2017 9:16 AM
To: Perry, Laura K; Dossett, Donald; Bray, Dave; Pavitt, John; Shaw, Hanh; Soderlund, Dianne
Cc: Lauck, Terry S.
Subject: CPAI OOOOa Alternative Monitoring Request
When: Friday, September 15, 2017 10:00 AM-11:00 AM (UTC-09:00) Alaska.
Where: Conference Call: (b) (6)

Good Morning Don,

Please let me know if this time does not work for you, and I'll reschedule for a time that does.

I'd like to walk through our Alternative Monitoring Request (AMR) for OOOOa Leak detection and Repair (LDAR) with you. Here is the proposed agenda for this meeting:

- Current OOOOa Requirements
- CPAI Proposed AMR
- 40 CFR 60.13(i) vs. OOOOa Alternative Means of Emission Limitation (AMEL)
- Timing considerations
- Questions/Concerns

Thank you for taking the time to talk with me about this. Please invite anyone else that you think should be in attendance, I have invited everyone I had on the AMR distribution list.

Regards,
Laura Perry

Laura Perry
Coordinator - Air Quality
ConocoPhillips Alaska, Inc.
Health, Safety & Environmental
P.O. Box 100360
Anchorage, AK 99510-0360
Phone: 907-265-6937
Laura.Perry@conocophillips.com

ConocoPhillips
Alaska

August 31, 2017

Certified Mail
Return Receipt Requested
7014 0150 0000 6333 2199

Don Dossett
U.S. EPA Region 10, Mail Stop: OCE-101
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Subject: ConocoPhillips Alaska, Inc. Alternative Monitoring Request pursuant to New Source Performance Standards Subpart OOOOa Well Site Leak Detection and Repair Requirements

Dear Mr. Dossett:

ConocoPhillips Alaska, Inc. (CPAI) has enclosed with this letter an Alternative Monitoring Request (AMR) for New Source Performance Standards (NSPS) pursuant to 40 CFR §60.13(i) for the Environmental Projection Agency's (EPA) approval. CPAI's crude oil production operations on the North slope of Alaska experience a unique ambient operating environment which creates technical feasibility issues for operating the Well Site Leak Detection and Repair (LDAR) monitoring equipment mandated by NSPS Subpart OOOOa. The enclosed request proposes an alternative to the mandated monitoring equipment and procedures.

Given the eminence of low ambient temperatures on the North Slope, CPAI would appreciate a response to this request by October 15, 2017.

If you have any questions or require additional information, please call me at (907) 265-6937.

Sincerely,

Laura K. Perry
Coordinator – Air Quality

Enclosure

cc: Hahn Shaw (EPA)
Dave Bray (EPA)
John Pavitt (EPA)
Dianne Solderlund (EPA)

1.0 Introduction and Objective

ConocoPhillips Alaska Inc. (CPAI) hereby submits the following request for the United States Environmental Protection Agency (USEPA) to approve an Alternative Monitoring Request (AMR) pursuant to 40 CFR §60.13(i) for the Well Site Leak Detection and Repair (LDAR) requirements established in the New Source Performance Standards for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015 Subpart OOOOa (NSPS OOOOa).

2.0 NSPS OOOOa LDAR Requirements

NSPS OOOOa establishes LDAR requirements for fugitive emission components (fugitive components) located at Well Sites associated with the drilling and subsequent operation of any oil well, natural gas well, or injection well [§60.5365a(i)].

Well Sites are subject to two types of LDAR monitoring surveys:

1. Initial Monitoring Survey
2. Routine Monitoring Survey

Operators must complete Initial Monitoring Surveys within 60 calendar days of the "startup of production" or first day of production (FDOP) depending on whether the well site is a "new" well site or a "modified" well site [§60.5397a(f)(1)].

Following completion of the Initial Monitoring Survey at the well site affected facility, NSPS OOOOa requires semi-annual Routine Monitoring Surveys. Consecutive semi-annual Routine Monitoring Surveys must be separated by at least 4 months [§60.5397a(g)(1)].

LDAR monitoring surveys must be completed using one of the following techniques [§60.5397a(c)(2)]:

1. Optical Gas Imaging (OGI)
2. USEPA Method 21 (Method 21) at 40 CFR Part 60, appendix A-7

3.0 CPAI Alaska North Slope Operations

CPAI operates crude oil production facilities on the North Slope of Alaska (North Slope). Crude oil is produced from multiple satellite drill sites which are connected via multi-phase pipelines (containing oil, water, and gas) to central processing facilities (CPF).

Drill sites contain a combination of surface equipment located in enclosure buildings such as piping manifolds, wellheads, and freeze protection storage.

Drill sites also contain distribution modules and surface equipment directly exposed to the atmosphere such as line heaters and piping.

Some enclosure buildings maintain higher than ambient temperatures due to heated radiated from high temperature process streams (e.g. manifold buildings) while other enclosures are only designed to shield workers from ambient conditions such as wind and snow and operate at internal temperatures close to the ambient.

Figure 1 depicts a site layout of typical North Slope drill site.

Figure 1. Typical North Slope Drill Site

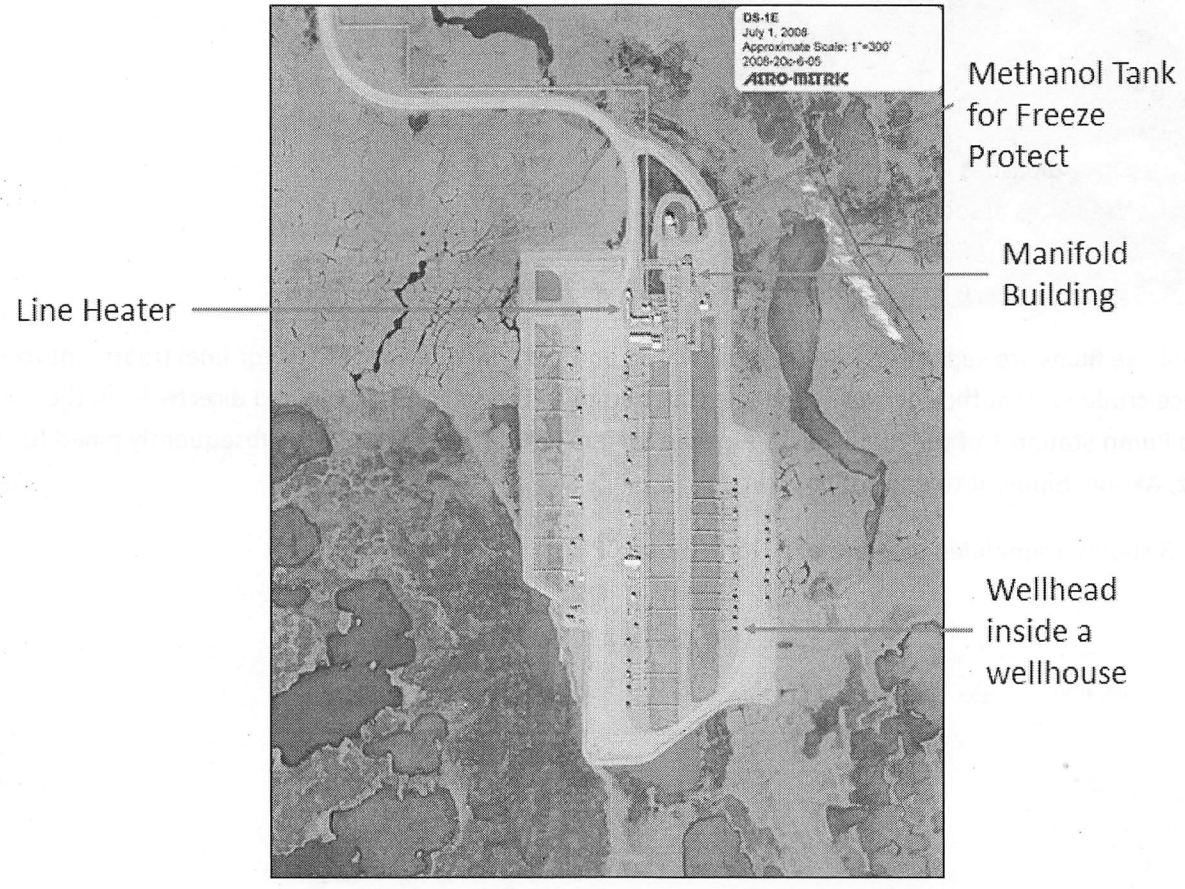
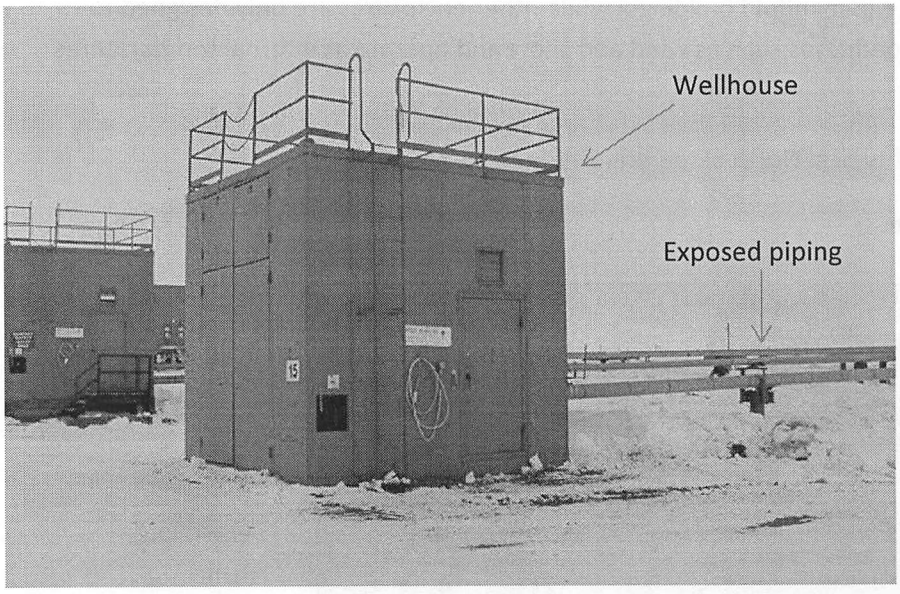


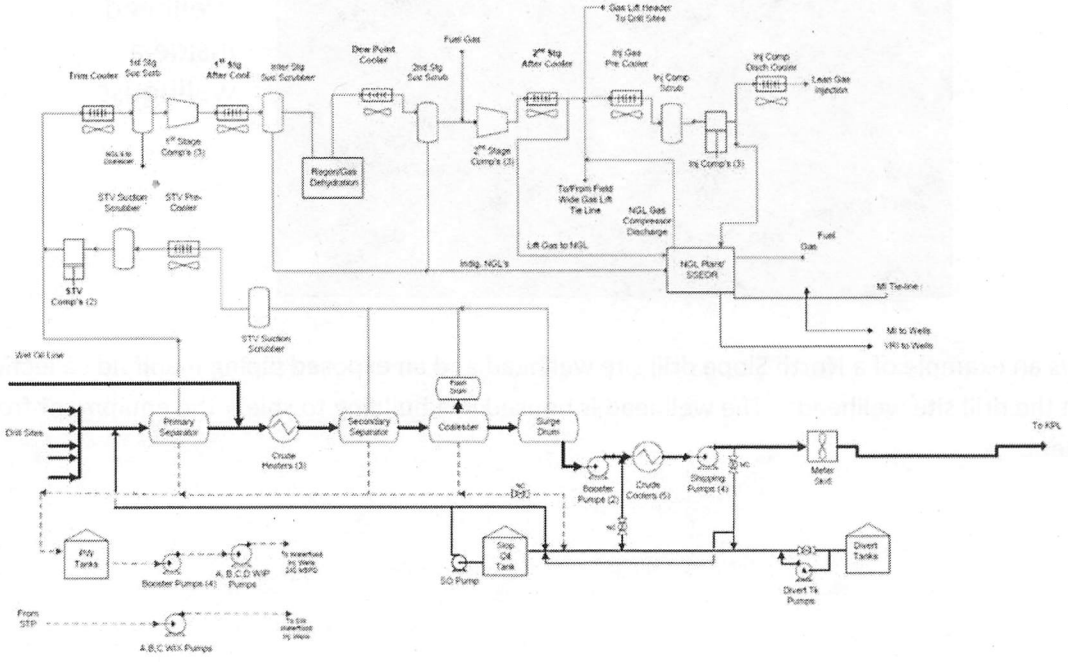
Figure 2 shows an example of a North Slope drill site wellhead and an exposed piping manifold collecting material from the drill site wellheads. The wellhead is housed in a building to shield the equipment from the environment.

Figure 2. Example North Slope Wellhouse



Multi-phase fluids are separated into their oil, water, and gas constituents at CPFs for final treatment to produce crude oil of sufficient quality for sale (sales crude). The sales crude is piped directly from the CPF to Pump Station 1 of the TransAlaska Pipeline System (TAPS) where the oil is subsequently piped to Valdez, AK for shipment to end-use markets.

Figure 3 shows a simplified diagram of a North Slope CPF.



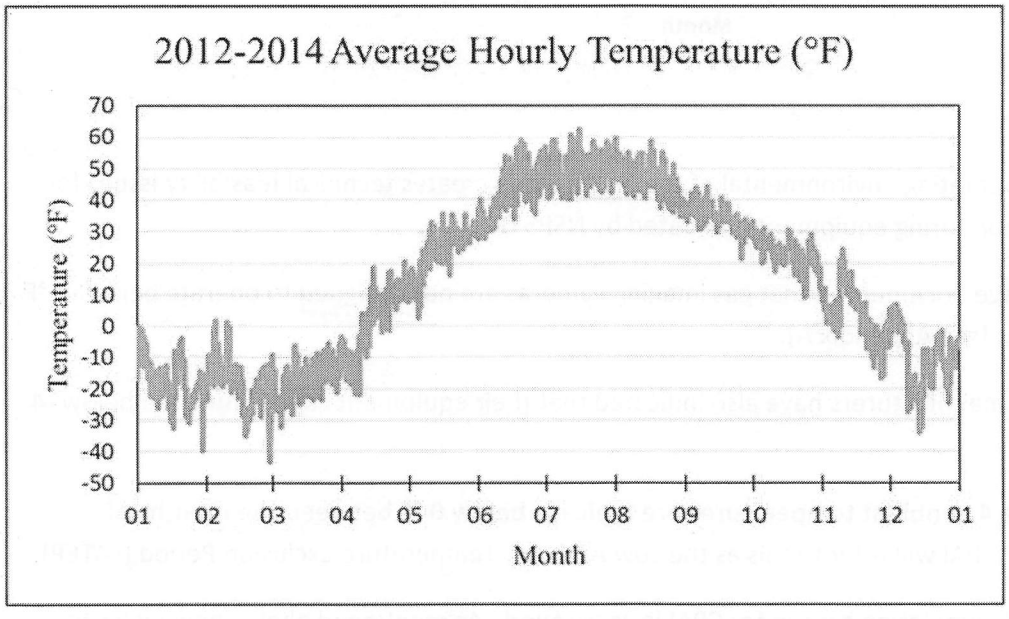
The North Slope of Alaska is the area between the Brooks Range and the Arctic Ocean. It is located entirely above the Arctic Circle. North Slope operations are subjected to unique, harsh environments including:

- Extended wintertime durations throughout calendar year as compared to geographies in the lower 48 contiguous United States (L48)
- Persistent wintertime ambient temperatures below 0 degrees Fahrenheit (°F)
- Consistent ambient wind conditions in the excess of 10 miles per hour (mph)
- Snow ground cover typically from September to June each year (10 months out of the year)

Snow cover combined with low temperatures and high winds can create extremely hazardous working environments referred to "phase conditions" where reduced visibility ground level travel restrictions are implemented for the safety of our personnel. Phase conditions can occur on more than 30% of the days in the months from October to May.

Figure 4 shows the ambient temperature measured from a meteorological station located at CPAI's CD1 Air Quality Monitoring Station from 2012 through 2014.

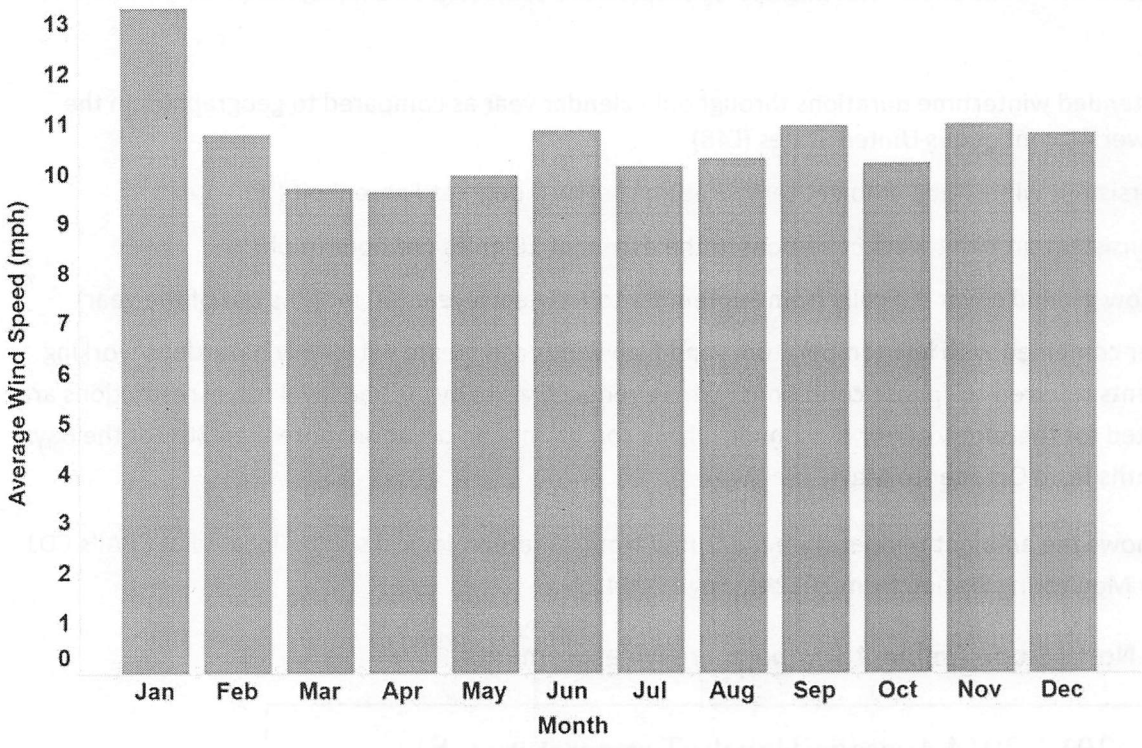
Figure 4. North Slope Ambient Temperature Measurements



As show from Figure 4, ambient temperatures can get to as low as -40 °F and are below 0 °F for over 5 months of the calendar year.

Figure 5 provides measured ambient wind speed date for North Slope operations from the period of 2012 to 2012 at the Alpine CD2 Monitoring Station.

Figure 5. Average Wind Speed for 2014



4.0 Challenges

The unique ambient operating environmental of the North Slope creates technical feasibility issues for operating the LDAR monitoring equipment mandated by NSPS OOOOa.

OGI manufacturers have documented that gas imaging cameras are not designed to operate below -4 °F ambient temperatures [see Appendix A].

Similarly, FID and PID manufacturers have also indicated that their equipment cannot function below -4 °F [see Appendix B].

As shown from Figure 4, ambient temperatures are typically below 0 °F between the months of November and April. CPAI will refer to this as the Low Ambient Temperature Exclusion Period (LATEP).

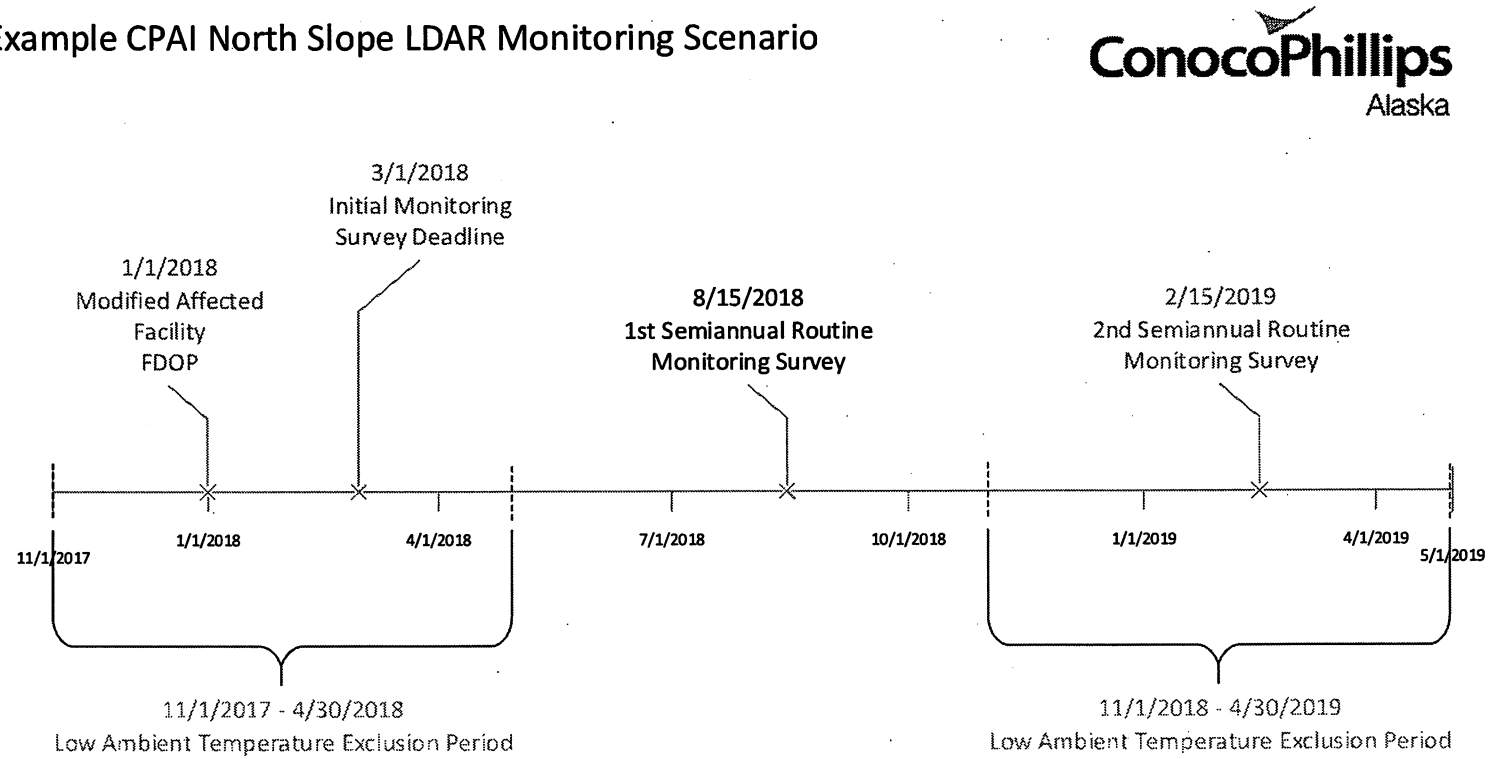
The active drilling and completion season for CPAI is year-round. As mentioned above, new well site affected facilities are required to complete Initial Monitoring Surveys within 60 calendar days of either "startup of production" or FDOP (as applicable).

It will be technically infeasible to use OGI or Method 21 equipment to survey fugitive components located outside of heated enclosures for any 60-day Initial Monitoring Survey deadlines which occur from November to April.

Additionally, it will also be technically infeasible to conduct Routine Monitoring Surveys separated by 4 months which fall within period of November to April (i.e. LATEP).

Figure 6 provides a foreseeable example scenario of the challenges associated with conducting Routine Monitoring Surveys on the North Slope.

Figure 6. Example of Technical Infeasibility of LDAR Monitoring Instruments due to Arctic Conditions



Red = regulatory monitoring survey deadlines that are technically infeasible to use OGI/Method 21 instruments at NHE locations

Black = regulatory monitoring deadlines where it is technically feasible to use OGI/Method 21 instruments at NHE locations

5.0 Implications

The unique arctic operating environment provides a small operating timeframe throughout the calendar year where it is technical feasible to conduct monitoring surveys using the NSPS OOOOa-mandated monitoring devices (i.e. OGI or Method 21 instruments), though surveys can be delayed due to non-temperature weather related factors (i.e. wind) and pushing the surveys into the LATEP. CPAI will not be able to comply with the NSPS OOOOa Initial Monitoring Survey and Routine Monitoring Survey requirements as currently established in the Rule.

Failure to complete the required Initial Monitoring Surveys and Routine Monitoring Surveys will be a deviation from NSPS OOOOa. Additionally, CPAI's North Slope operations are subject to the federal Title V operating permit program. CPAI will need to incorporate the applicable NSPS OOOOa requirements into their Title V operating permits. Deviations from NSPS OOOOa will not allow CPAI to certify compliance as part of the required annual compliance certifications.

6.0 Alternative Monitoring Request

Part 60 Subpart A provides a mechanism for owners or operators of affected facilities to submit a written application to petition the USEPA (Administrator) to allow alternatives to any monitoring procedures or requirements in Part 60 [§60.13(i)]

In light of the physical limitations for operating OGI and Method 21 instruments in arctic temperatures below their design capabilities, CPAI proposes the following alternative.

A. Affected facility operating areas will be designated as one of the following:
    i. Fugitive emission components in "heated enclosures" (HEC)
    ii. Fugitive emission components in "non-heated or open environments" (NHE)
        - HEC locations include: drill site manifold, test separator, chemical injection, pump, line heater manifold, emergency shutdown, pigging modules, etc.
        - NHE locations include: drill site line heaters; un-heated well houses; storage tanks; well dedicated, diesel and chemical, and cross country piping; injection headers; etc.

B. Initial Monitoring Surveys
    i. HEC Locations: complete Initial Monitoring Surveys using OGI or Method 21 instruments within 60 days of "start of production" or FDOP as applicable
    ii. NHE Locations: completed audible, visual, or olfactory (AVO) inspections within "startup of production" or FDOP as applicable when the deadline falls within the LATEP. Initial Monitoring Surveys that do not occur within the LATEP will use OGI or Method 21.

C. Routine Monitoring Surveys
    i. HEC Locations: complete Routine Monitoring Surveys using OGI or Method 21 instruments semi-annually with consecutive surveys separated by 4 months

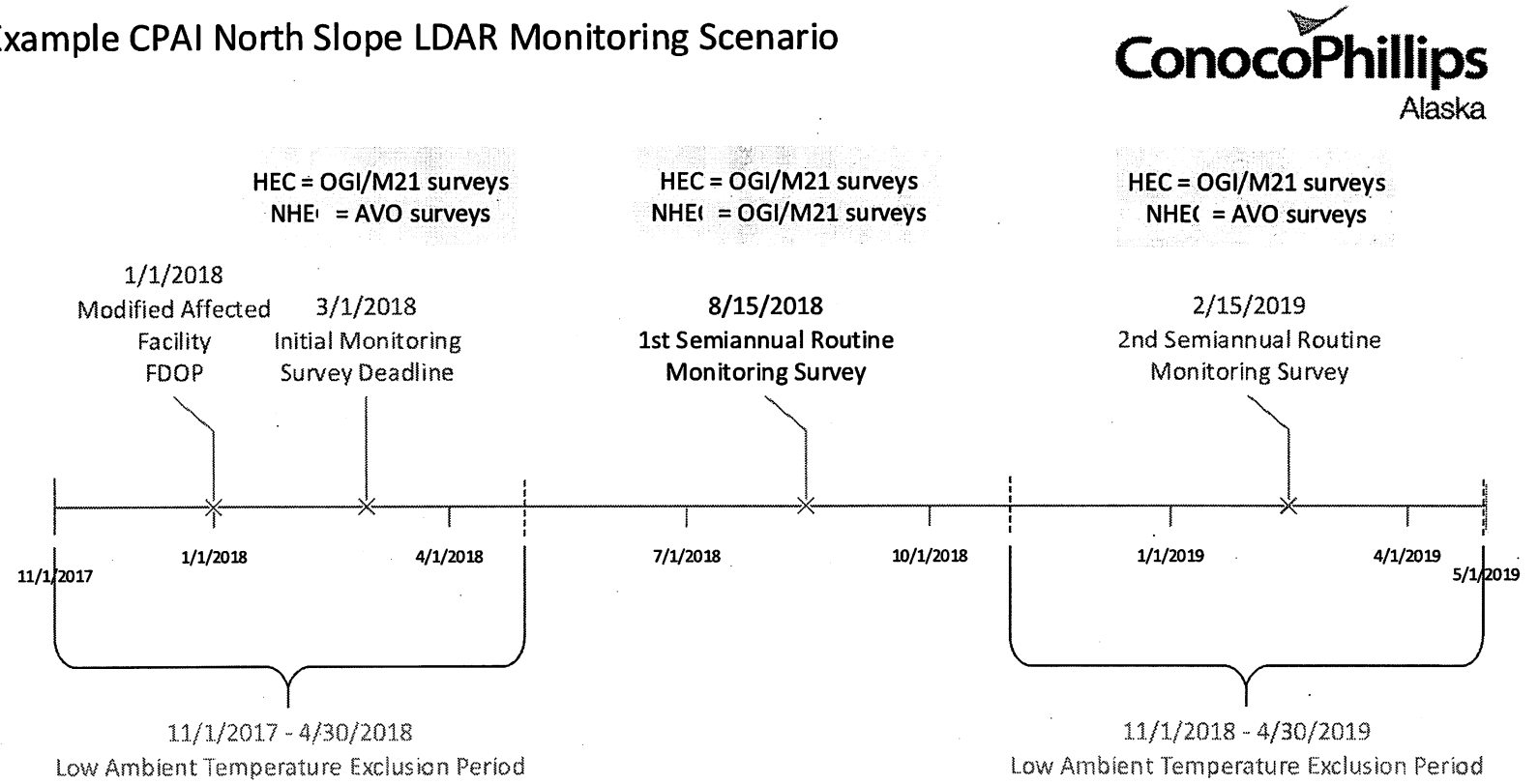
ii. NHE Locations: complete annual OGI or Method 21 surveys and conduct one AVO inspections during the next required semi-annual inspection (as a substitute for the OGI or Method 21 survey).

Currently, CPAI is only subject to the Well Site LDAR requirements in NSPS OOOOa, however the Compressor Station requirements could apply in the future. The technical limitations for conducting OGI or Method 21 inspections at Well Sites would also apply to Compressor Stations. Accordingly, CPAI requests that the proposed AMR concept described in this document for replacing OGI/Method 21 inspections at NHE locations with AVO inspections for monitoring surveys that fall within the LATEP also be available for any Compressor Stations located on the North Slope.

Figure 7 illustrates the proposed[1] AMR using the same timeline described above.

[1] Note, this timeline is designed to illustrate how AVO inspections will be used to replace OGI/Method 21 inspections for the AMR. It is not submitted as an actual, proposed monitoring schedule. Monitoring schedules will be created based on the applicability triggers and requirements governing consecutive monitoring events established in NSPS OOOOa.

Figure 7. Example Alternate Monitoring Request for Arctic Conditions



Red = regulatory monitoring survey deadlines that are technically infeasible to use OGI/Method 21 instruments at NHE ocations

Black = regulatory monitoring deadlines where it is technically feasible to use OGI/Method 21 instruments at NHE ocations

The USEPA has previously approved alternative monitoring requirements where technical infeasibility issues were identified with the prescribed LDAR monitoring techniques (e.g. ADI Control Number 0100078, M040011). For example, the USEPA approved an Alternate Monitoring Request allowing AVO inspections as a substitute for Method 21 surveys due to a physical limitation in the monitoring instruments ability to detect the presence of ethylene glycol (See Appendix C).

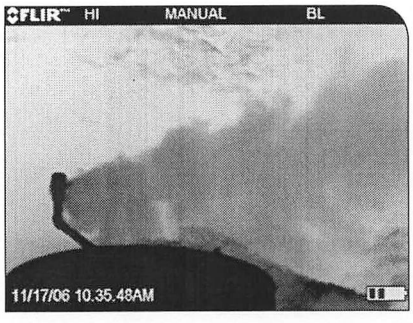
7.0 Summary

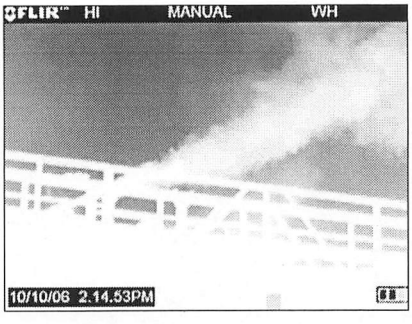
The unique, harsh ambient conditions in the Alaska North Slope create several challenges for conducting leak detection surveys using the monitoring instruments prescribed in NSPS OOOOa. The objective of the surveys is to identify and repair leaks; however, conducting surveys in conditions where the monitoring equipment is not designed to operate will produced inaccurate results where leaks may not be identified. This will prevent the regulation from achieving its desired objective.

Consistent with the intent of the Rule to identify and repair leaks, CPAI requests that the USEPA approve an Alternative Monitoring Request to allow AVO inspections for equipment that cannot be inspected using the prescribed monitoring techniques.

Approval of the AMR will provide the USEPA with confidence that CPAI is conducting field inspections for all affected equipment and any leaks identified are repaired in accordance with the NSPS OOOOa requirements. The AVO inspections will only be conducted for equipment where it is not technically feasible to conduct the prescribed OGI/Method 21 surveys. Approval of CPAI's AMR is consistent with the USEPA's previous determinations for LDAR regulations where there are technical limitations in the monitoring instruments.

Appendix A – OGI Manufacturer Operating Condition Specifications





FLIR GF300/GF320

Infrared Camera for Methane and VOC Detection

The FLIR GF300/GF320 is a revolutionary infrared camera capable of detecting Methane and Volatile Organic Compound (VOC) fugitive emissions from the production, transportation, and use of oil and natural gas. This camera can scan large areas and visualize potential gas leaks in real-time, so you can check thousands of components over the course of one survey. Designed with the user in mind, the GF300/GF320 is lightweight, offers both a viewfinder and LCD monitor, and has direct access to controls. Embedded GPS data helps in identifying the precise location of faults and leaks, for faster repairs.

Visualize Gas Emissions in Real-time

The FLIR GF300/GF320 is unbeatable at detecting gas emissions, with a High Sensitivity Mode that lets you visualize even the smallest leaks in real-time. Use this visual verification to pinpoint the exact source of the emissions and begin repairs immediately. In addition, the GF320 is capable of measuring temperatures up to 350 °C with ±1 °C accuracy, allowing you to note temperature differentials and improve gas plume detection.

Increase Worker Safety

Surveys performed with GF300/GF320 cameras are nine-times faster than those performed with gas sniffers. They're also safer: optical gas imaging does not require close contact with components in order to detect gas. This reduces the risk of exposure to invisible and potentially harmful chemicals. In addition, the camera can scan areas of interest that are difficult to reach using conventional methods. The ergonomic design, with a bright LCD and articulated viewfinder, takes the strain out of a full day of surveys.

Stop Leaks, Save Money, Help the Environment

By fixing gas leaks, you can save your company thousands in lost gas and lost profits, while at the same time improving regulatory compliance and protecting the environment. The FLIR GF300/GF320 complies with all current regulations for Optical Gas Imaging (OGI). See our website for a full listing.

The GF300/GF320 detects the following gases:

Methanol	Methane	Benzene	Ethane	Propylene
Ethanol	Pentane	1-Pentene	Isoprene	Butane
Ethylbenzene	MEK	Toluene	Propane	Octane
Heptane	MIBK	Xylene	Ethylene	Hexane

Specifications

Model	GF300 / GF320
Detector Type	FLIR Indium Antimonide (InSb)
Spectral Range	3.2 – 3.4 µm
Resolution	320 x 240 pixels
Detector Pitch	30 µm
NETD/Thermal Sensitivity	<15 mK @ +30°C (+86°F)
Sensor Cooling	Stirling Microcooler (FLIR MC-3)
Electronics / Imaging	
Image Modes	IR Image, visual image, high sensitivity mode (HSM)
Frame Rate (Full Window)	60 Hz
Dynamic Range	14-bit
Video Recording / Streaming	Real-time non-radiometric recording: MPEG4/H.264 (up to 60 min./clip) to memory card Real-time non-radiometric streaming: RTP/MPEG4
Visual Video	MPEG4 (25 min./clip) to memory card
Visual Image	3.2 MP from integrated visible camera
GPS	Location data stored with every image
Camera Control	Remote camera control via USB
Measurement	
Standard Temperature Range	–20°C to +350°C (–4°F to +662°F)
Accuracy*	±1°C (±1.8°F) for temperature range (0°C, to +100°C, +32°F to +212°F) or ±2% of reading for temperature range (>+100°C, >+212°F)
Optics	
Camera f/number	f/1.5
Available Fixed Lenses	14.5° (38 mm), 24° (23 mm)
Focus	Automatic (one touch) or manual (electric or on the lens)
Image Presentation	
On-Camera Display	Built-in widescreen, 4.3 in. LCD, 800 x 480 pixels
Automatic Gain Control	Continuous/manual, linear, histogram
Image Analysis*	10 spotmeters, 5 boxes with max./min./average, profile, delta temperatures, emissivity & measurement corrections
Color palettes	Iron, Gray, Rainbow, Arctic, Lava, Rainbow HC
Zoom	1-8x continuous, digital zoom
General	
Operating Temperature Range	–20°C to +50°C (–4°F to +122°F)
Storage Temperature Range	–30°C to +60°C (–22°F to +140°F)
Encapsulation	IP 54 (IEC 60529)
Bump / Vibration	25 g (IEC 60068-2-27) / 2 g (IEC 60068-2-6)
Power	AC adapter 90-260 VAC, 50/60 Hz or 12 V from a vehicle
Battery System	Rechargeable Li-ion battery
Weight w/ Battery & Lens	1.94 kg (4.27 lbs)
Size (L x W x H) w/ Lens	305 x 169 x 161 mm
Mounting	Standard, 1/4"-20

* GF320 model only

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Appendix B – FID and PID Manufacturer Operating Condition Specifications

Product Overview
TVA1000B
Toxic Vapor Analyzer

The Only Portable Intrinsically Safe Dual PID/FID Analyzer

Analyze • Detect • Measure • Control™

Thermo
ELECTRON CORPORATION

Portable Toxic Vapor Analyzer

The TVA1000B is the only over-the-shoulder portable vapor analyzer that offers both PID (Photo Ionization Detection) and FID (Flame Ionization Detection) in a single, easy-to-use instrument. The ability to utilize both technologies in this field proven instrument provides benefits in reduced weight and a single user interface. The user can easily monitor and log inorganic and organic vapors simultaneously.

FID Detection

Users can measure a wide variety of organic vapors over an impressive dynamic range (0-50,000 ppm), monitoring some compounds that the PID will not detect. The flame ionization detector operates by breaking hydrocarbon bonds and is not limited by the ionization potential of the molecule.

Simultaneous FID/PID Detection

No other instrument offers both Photo Ionization and Flame Ionization Detection operating simultaneously in a single portable vapor analyzer. Dual detection eliminates the time, expense and trouble of purchasing and maintaining two separate analyzers.

With PID detection, the user has not only the ability to monitor for organic compounds, but also can detect many inorganic compounds. Some compounds detected by PID and not FID are ammonia, carbon disulfide, carbon tetrachloride, formaldehyde, and hydrogen sulfide. The PID also has the advantage of not requiring fuel or air to operate. In anaerobic environments, the TVA1000B PID can be used.

Applications

Fugitive Emissions Monitoring
The unique dual detector FID/PID design can handle a wide range of compound vapors present at processing plants. The TVA1000B will permit monitoring at lower ppm levels.

Emergency Response
For reliable measurements of hazardous spills or emissions, the TVA1000B responds quickly in an emergency. The ability to quickly detect the presence of "hot spots" is key to locating the source of the hazard.

Hazardous Waste Site Evaluation
The TVA1000B allows quick and easy identification of the hazard location and quantifies the level of contamination.

Underground Storage Tanks
The TVA1000B is a primary tool for determining if a UST is leaking and the extent of the contamination.

Industrial Hygiene
The TVA1000B can help you maximize the effectiveness of your plant ventilation system, and identifies trouble spots. Use it to survey ambient vapor levels in specific breathing zones or in general plant environments, and log for furthur follow-up action.

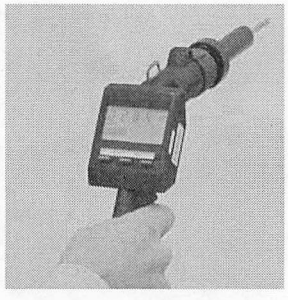
Natural Gas Leak Detection
The TVA1000B enables quick and easy detection of natural gas leaks.

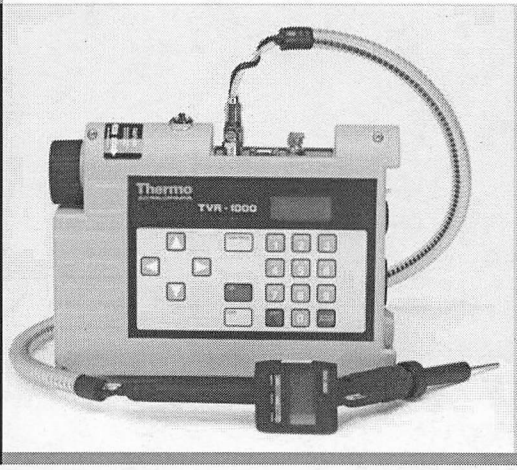
Key Features

- Simultaneous FID/PID or Single FID detector(s)
- Portable and lightweight
- Multiple response factors and curves
- Multi-point calibration
- On-board datalogging
- 8 hour battery life

Probe Options

- *Standard Probe*
  Display measurement values on a 4-character LCD, with measurement units displayed on %, ppm, or ppb. Additionally, a bar graph indicator provides an indication of concentration level. Function keys allow selection of analyzer functions.
- *Enhanced Probe*
  Originally designed for Fugitive Emissions monitoring, the enhanced probe has a larger display area than the basic probe. This provides a display of up to 6 lines x 20 characters, plus a double height concentration value. It displays all the same information as the standard probe and has menu-driven access to many of the analyzer functions, allowing them to be easily initiated and/or changed at the probe.





TVA1000B Data Manager Accessory: Route Management Probe

Powerful field capabilities
The TVA1000B Data Manager allows users to modify or create route data in the field, eliminating the need for manual recording of data. This helps you comply with the electronic data storage requirements within most consent decrees. The new probe has a highly visible 360 degree LED with a pulsed rate linked to concentration.

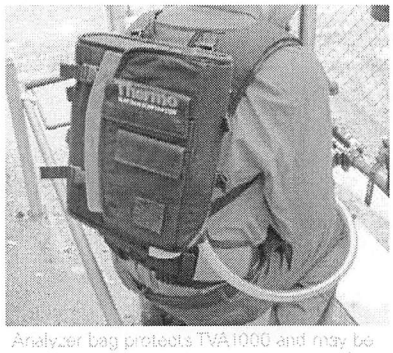
The DataManager provides access to all of the features previously available only through the sidepack. Users can also easily search and navigate between tags in a route by simply entering the desired tag identifier.

Flexibility and control
The DataManager allows control of how data is viewed and accessed in the field. This allows the user to customize the view to best meet the monitoring needs at your facility, as each route may have different fields and screen displays. Fields may be designated as non-editable to enhance data integrity and database security.

An optional comment field allows the user to make electronic notes about each tag monitored. An alpha-numeric keypad makes data entry a snap.

Key Features for the DataManager

- Custom field labels for more clearly identified route information
- Definable screen layouts optimize user efficiency
- Pick lists lead to consistent data entry and minimize chance of data entry errors
- One button selections to access most commonly used functions
- New sample probe provides 360 degree visual indicator of concentration level
- Cable management system eliminates snagging sample line and electronic cable
- Existing TVA1000 units may be upgraded
- Enhanced filtering system removes dirt and water more efficiently.



Analyzer bag protects TVA1000 and may be used with standard shoulder strap or optional framed backpack

ThermoConnect Software

ThermoConnect enables users of the TVA1000B to transfer, display, analyze, and configure data from the instrument using a computer. ThermoConnect is windows based and facilitates the importing of data into other Windows based applications making it easier to retrieve logged data.

Added capability to maximize the TVA DataManager's features

ThermoConnect has been updated with a powerful new utility to create new route database template files. This utility allows you to easily build your own route database and design the screen appearance through a four-step process. Also, any existing route files in the old file format are still recognized by the TVA and may be upgraded to the new format.

Complete DataManager System

The **TVA1000B** is a benchmark for experience and reliability in Fugitive Emissions Monitoring

TVA1000B Technical Specifications

Safety certifications	FM (Class 1, Div. 1, Groups A,B,C&D Hazardous Location, Temp. Class T4) CENELEC (Div. 1, Zones I and II Group IIC, Hazardous Location, Temp. Class T4)*
Datalogging	Onboard
Readout	Bar graph & 4- digit LCD
Dynamic Range	0.5-2,000 ppm (PID) isobutylene; 0.5-50,000 ppm (FID) methane
Linear Range	0.5-500 ppm (PID) isobutylene; 0.5-10,000 ppm (FID) methane
Response Time	3.5 seconds
Minimum Detectable Limit	100 ppb benzene (PID); 300 ppb hexane (FID)
Alarms	Low, high, STEL
Sample Flow Rate	1,000 cc/min nominal
Power	Rechargeable NiCd Battery
Logging Capacity	800-18,000 points mode specific
Temperature Range	0-40°C (32°F - 104°F)
Fuel	None required (PID); 99.995% hydrogen (FID)
Portable Operation Time	8 hours (with reference operating conditions)
Approximate Mass	5.8 kg (13 pounds)
Nominal Dimensions	13.5 x 10.3 x 3.2 inches (343 x 262 x 81 mm)
Analog Output	0-2V dc
Repeatability	+/- 1% (PID); +/- 2% (FID)
Autoranging	Yes
Diagnostics	Yes

Other Available Options:

Carrying Case	P/N CR012XL
Charcoal Filter	P/N 510095-1
FID Calibration Kit	P/N CR009UY
PID/FID Calibration Kit	P/N CR012UH

** Enhanced probe and DataManager not CENELEC certified as of publication date*

A world leader in high-tech instruments, Thermo Electron Corporation helps life science, laboratory, and industrial customers advance scientific knowledge, enable drug discovery, improve manufacturing processes, and protect people and the environment with instruments, scientific equipment and integrated software solutions.

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TÜV MANAGEMENT SERVICE ISO 9001

Lit: TVAMC703

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02038

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- Water Sampling
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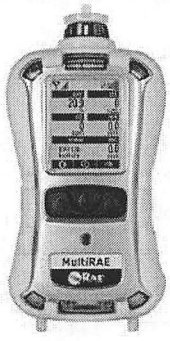
- Solinst
- Sensidyne
- Air Systems

All Manufacturers

You are: Home / Gas Detection / Multi Gas Monitors / 2-6 Gas Monitors /

MultiRAE



Manufacturer: RAE Systems

Order / Quote

Description | Specifications | Applications | Downloads

Size

- 7.6" H x 3.8" W x 2.6" D (193 x 96.5 x 66 mm)

Weight

- 31 oz. (880 g)

Sensors

- Over 30 intelligent interchangeable field-replaceable sensors including PID for VOCs, electrochemical sensors for toxic gases and oxygen, combustible LEL and NDIR sensors, and CO_2 NDIR sensor

PID sensors	Range	Resolution
VOC 10.6 eV (HR)	0 to 5,000 ppm	0.1 ppm
VOC 9.8 eV1	0 to 1,000 ppm	0.1 ppm
Combustible sensors		
Catalytic LEL	0 to 100% LEL	1% LEL
NDIR (0-100% LEL Methane)	0 to 100% LEL	1% LEL
NDIR (0-100% Vol. Methane)	0 to 100% Vol.	0.1% Vol.
Carbon Dioxide sensor		
Carbon Dioxide (CO_2) NDIR	0 to 50,000 ppm	100 ppm
Electrochemical sensors		
Ammonia (NH_3)	0 to 100 ppm	1 ppm
Carbon Monoxide (CO)	0 to 500 ppm	1 ppm
Carbon Monoxide (CO), Ext. Range	0 to 2,000 ppm	10 ppm
Carbon Monoxide (CO), H2-comp.	0 to 2,000 ppm	10 ppm
Carbon Monoxide (CO) and Hydrogen Sulfide (H_2S) Combo	0 to 500 ppm	1 ppm
	0 to 200 ppm	0.1 ppm
	0 to 50 ppm	0.1 ppm

Chlorine (Cl_2)		
Chlorine Dioxide (ClO_2)	0 to 1 ppm	0.03 ppm
Ethylene Oxide (EtO-A)	0 to 100 ppm	0.5 ppm
Ethylene Oxide (EtO-B)	0 to 10 ppm	0.1 ppm
Ethylene Oxide (EtO-C), Ext. Range	0 to 500 ppm	10 ppm
Formaldehyde (HCHO)	0 to 10 ppm	0.01 ppm
Hydrogen (H_2)	0 to 1,000 ppm	2 ppm
Hydrogen Chloride (HCl)	0 to 15 ppm	1 ppm
Hydrogen Cyanide (HCN)	0 to 50 ppm	0.5 ppm
Hydrogen Fluoride (HF)	0 to 10 ppm	0.1 ppm
Hydrogen Sulfide (H_2S)	0 to 100 ppm	0.1 ppm
Hydrogen Sulfide (H_2S), Ext. Range	0 to 1,000 ppm	1 ppm
Methyl Mercaptan (CH_3-SH)	0 to 10 ppm	0.1 ppm
Nitric Oxide (NO)	0 to 250 ppm	0.5 ppm
Nitrogen Dioxide (NO_2)	0 to 20 ppm	0.1 ppm
Oxygen (O_2)	0 to 30% Vol.	0.1% Vol.
Phosgene ($COCl_2$)	0 to 1 ppm	0.02 ppm
Phosphine (PH_3)	0 to 20 ppm	0.1 ppm
Phosphine (PH_3), Ext. Range	0 to 1,000 ppm	1 ppm
Sulfur Dioxide (SO_2)	0 to 20 ppm	0.1 ppm

Battery Options

- Rechargeable Li-ion (~12-hr. runtime, < 6-hr. recharge time)
- Extended duration Li-ion (~18-hr. runtime, < 9-hr. recharge time)
- Alkaline adapter with 4 x AA batteries (~6-hr. runtime)

Display

- Monochrome graphical LCD display (128 x 160) with backlighting
- Automatic screen "flip" feature

Display Readout

- Real-time reading of gas concentrations; PID measurement gas and correction factor; battery status; datalogging on/off; wireless on/off and reception quality
- STEL, TWA, peak, and minimum values

Keypad Buttons

- 3 operation and programming keys (Mode, Y/+, and N/-)

Sampling

- Built-in pump
- Average flow rate: 250 cc/min.
- Auto shutoff in low-flow conditions

Sensor Specifications - VOC's

- Range (ppm) 0 to 999.9 / Resolution (ppm) 0.1 / Response Time (T90) <3 sec
- Range (ppm) 1000 - 5,000 / Resolution 1 / Response Time (T90) <3 sec

Calibration

- Automatic with AutoRAE 2 Test and Calibration System1 or manual

Alarms

- Wireless remote alarm notification

- Multi-tone audible (95 dB @ 30 cm), vibration, visible (flashing bright red LEDs), and on-screen indication of alarm conditions
- Man Down Alarm with pre-alarm and real-time remote wireless notification

Datalogging

- Continuous datalogging (6 months for 5 sensors at 1-minute intervals, 24/7)
- User-configurable datalogging intervals (from 1 to 3,600 seconds)

Communication and Data Download

- Data download and instrument set-up and upgrades on PC via charging and PC comm. cradle, travel charger, or AutoRAE 2 Automated Test and Calibration System1
- Wireless data and alarm status transmission via built-in RF modem (optional)

Wireless Network

- RAE Systems Dedicated Wireless Network

Wireless Frequency

- ISM license-free bands

Wireless Range

- (Typical) 656 feet (200 meters)

Operating Temperature

- -4° to 122° F (-20° to 50° C)

Humidity

- 0% to 95% relative humidity (non-condensing)

Dust and Water Resistance

- IP-65 rating

Hazardous Location Approvals

- CSA: Class I, Division 1, Groups A, B, C and D, T4
- ATEX: 0575 II 2G Ex ia d IIC T4 Gb
- IECEx: Ex ia d IIC T4 Gb

CE Compliance (European Conformity)

- EMC directive: 2004/108/EC
- R&TTE directive: 1999/5/EC
- ATEX directive: 94/9/EC

EMI/RFI

- No effect when exposed to 0.43mW/cm2 RF interference from a 5-watt transmitter at 12"

Performance Tests

- MIL-STD-810F compliant. LEL CSA C22.2 No. 152; ISA-12.13.01

Languages

- Arabic, Chinese, Czech, Danish, Dutch, English, French, German, Indonesian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, and Swedish

Warranty

- 2 years on non-consumable components and catalytic LEL, CO, H_2S, and O_2 sensors
- 1 year on all other sensors, pump, battery, and other consumable parts

Additional equipment and/or software licenses may be required to enable remote wireless monitoring and alarm transmission

The CO + H_2S combo sensor is required for a 6-gas configuration

Specifications are subject to change

RETURN TO TOP OF PAGE

Appendix C – EPA AMR Approvals from the Applicability Determination Index

tter:

JITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8 999 18TH
'REET - SUITE 300 DENVER, CO 80202-2466 Phone 800-227-8917
p://www.epa.gov/region08

:f: ENF-AT

:. Betsy Wagner
:gulatory Specialist
ievron U.S.A. Production Company
13 West Cheyenne Drive
anston, WY 82930

:: MACT Subpart HH Affected Facility in Wyoming Alternative Monitoring for Leak
:tection on Ancillary Equipment

:ar Ms. Wagner:

is letter is in response to your March 11, 2003, request for alternative monitoring under
: National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas
oduction Facilities (40 CFR Part 63, Subpart HH). Specifically, you are seeking approva
' alternative monitoring of ethylene glycol in jacket water service at the Carter Creek Ga
ant in Evanston, WY (AFS # 56-041-00009). Carter Creek Gas Plant is a sour natural g
ocessing plant designed with a nominal capacity to process 155 million standard cubic
:t per day of sour inlet gas.

rsuant to definitions in 40 CFR Part 63, Sec. 63.761, the jacket water service at the
rter Creek Gas Plant is considered "ancillary equipment" that operates "in VHAP servic
ice ethylene glycol is used in concentrations equal to or greater than 10 percent by
:ight. Therefore, pursuant to 40 CFR Sec. 63.769(a), equipment leak standards apply to
: jacket water service since it is located at a natural gas processing plant and operates
HAP service equal to or greater than 300 hours per calendar year. 40 CFR Sec.
.769(c), requires the Carter Creek Gas Plant to follow the equipment leak standards
ecified in 40 CFR Part 61, Subpart V, Secs. 61.241 through 61.247. These sections
ecify Method 21 as the monitoring method with which to comply.

e jacket water at the Carter Creek Gas Plant is a mixture of ethylene glycol and water
d it is used to cool various pieces of equipment throughout the plant. As stated in your
ter, although the jacket water becomes hot during this process, the mixture exists in the
stem as a liquid, not as a gas. Ethylene glycol's high boiling point of 198øC, also ensure

Yes. The proposed alternative monitoring is acceptable as a substitute for Method 21.

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tter:

:tober 2, 2001

.PT-ARB

:. Robert L. Barnes
ıvironmental Affairs
ıstman Chemical Company
D. Box 511
ıgsport, Tennessee 37662

:ar Mr. Barnes:

e have received your August 29, 2001, letter requesting a determination of equivalent :ans of emission limitation for equipment subject to New Source Performance Standard SPS) Subpart VV - "Standards of Performance for Equipment Leaks of Volatile Organic)mpounds (VOC) in the Synthetic Organic Chemicals Manufacturing Industry." As licated in your request, process emission source B-226P-1 at Eastman Chemical will be bject to Subpart VV which requires monitoring of equipment in ethylene glycol vapor rvice by using Method 21 to comply with Sec. 60.482-4 (pressure relief devices in s/vapor service) and Sec. 60.482- 7 (valves in gas/vapor service and in light liquid rvice). Due to the limitation in the application of Method 21 to ethylene glycol vapor, you ve proposed to substitute quarterly visual inspections of equipment in ethylene glycol por service for process unit B-226P-1, instead of using Method 21. We have reviewed ur request and have determined that the proposed alternative monitoring is acceptable. ıce your request constitutes a proposed alternative monitoring procedure instead of an uivalent emission limit, the requirements of Sec. 60.484 will not be applicable.

you have described in your letter, since ethylene glycol has a boiling point of proximately 197 degrees centigrade, any vapor escaping from the process equipment ıuld quickly condense and form a liquid. You have indicated that this would make tection by Method 21 less accurate and reliable than sensory monitoring, since ethylene 'col vapor would condense in the probe of the monitoring device and would not reach th me ionization detector. You have indicated that calibration adjustments would serve littl no purpose, and there would be a high probability that leaks that are detectable through nsory monitoring would not be detected by Method 21.

addition to the issues addressed in the Eastman Chemical request, we have found